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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,005	11/27/2000	Emmanuel Hadji	33019	7399

7590 09/15/2003
Pearne Gordon McCoy & Granger
Suite 1200
526 Superior Avenue East
Cleveland, OH 44114-1484

EXAMINER

AHMED, SHAMIM

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 09/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/673,005

Applicant(s)

HADJI ET AL.

Examiner

Shamim Ahmed

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-- The MAILING DATE of this c mmunication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 1 is objected to because of the following informalities: in claim 1, line 2, the determined thickness should be clarify to be an optical thickness by removing the parenthesis.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2,4 are rejected under 35 U.S.C. 102(e) as being anticipated by Biasse et al (5,993,677).

As to claims 1-2, Biasse et al disclose a process, wherein molecular bonding of a silicon block (120) having a surface layer (124) delimited by a cleavage area (126) substantially parallel to its surface and the silicon block being covered by silicon oxide layer (112) brought into contact with a support layer (132) (col.3, lines 14-17, col.4, lines 38-54).

Biasse et al teaches cleavage of the silicon block along the cleavage area to detach the surface layer fixed to the support (col.4, lines 55-62 and figures 9-10).

Biasse et al also teach that an etching process is performed to eliminate or thinning the surface layer in order to have a desired thickness (col.5, lines 9-11).

As to claim 2, Biasse et al inherently teach that the thickness of the surface layer is greater than the desired thickness because after cleavage, an etching is performed for thinning to a desired thickness.

As to claim 4, Biasse et al teach that the cleavage zone is formed using hydrogen implantation (col.3, lines 18-23).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Biasse et al (5,993,677) in view of Ohmura et al (4,848,272).

Biasse et al discussed above in the paragraph 4 but fail to disclose to increase the thickness by crystalline growth.

It would have been obvious to one skilled in the art to increase the thickness if the thickness is less than the predetermined thickness and furthermore, crystalline growth is conventional technique to form an epitaxial layer on a silicon substrate as supported by Ohmura et al.

Ohmura et al teach that crystalline growth is conventional to provide a high quality thin film having uniform thickness over a semiconductor substrate (col. 1, lines 10-14 and col.2, lines 3-7).

8. Claims 5-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramdani et al (5,835,521) in view of Biasse et al (5,993,677).

Ramdani et al disclose a bragg mirror structure (10) including alternating layers of silicon oxide and a silicon material utilizing epitaxial growth technique and /or wafer bonding, wherein the alternating silicon oxide and silicon layers inherently includes the optical property such as the optical thickness of the alternating layers (col.3, lines 17-25).

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As to claim 6, Ramdani et al teach that silicon oxide layer is formed by standard epitaxial growth technique including CVD or PECVD technique (col.3, lines 18-25).

Ramdani et al also disclose that an optical component is formed by fabricating a vertical cavity surface emitting laser or active region on the bragg mirror (col.3, lines 9-55).

Ramdani et al also teach that a second mirror (42) is disposed over the active region (col.6, lines 4-24).

Ramdani et al fail to teach the formation of silicon layer as the context of claim 1 namely bonding a silicon block with a support, cleaving the silicon block and thinning the surface layer to a desired thickness.

However, Biasse et al discussed in the paragraph 4 above in order to efficiently form a silicon layer with a desired thickness.

Therefore, it would have been obvious to one skilled in the art at the time of claimed invention to combine Biasse et al's teaching into Ramdani et al's process for easily providing a predetermined thickness of the silicon layer as taught by Biasse et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (703) 305-1929. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G Norton can be reached on (703) 305-2667. The fax phone

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number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Shamim Ahmed
Examiner
Art Unit 1765

SA
September 10, 2003